

**WAVEFORM DETECTOR AND DETECTION METHOD**

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**Abstract**

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**PURPOSE:** To obtain a waveform detector which can detect an AC waveform accurately.  
**CONSTITUTION:** An AC voltage waveform is inputted through an input means, i.e., a PT1, and passed through a low-pass filter 2 for removing high frequency components except those on the order of 50Hz. The AC input voltage waveform is sampled for 50ms at a clock of 25.6kHz from a sample clock output circuit 5, thus obtaining a sample of 2.5 periods. Two zero-cross are then determined, based on the sampled data, and a half period is calculated followed by calculation of frequency. A decision is made whether the calculated frequency is higher than 49Hz but lower than 51Hz and the data is invalidated if the frequency is lower than 49Hz or higher than 51Hz. Subsequently, resampling is repeated 512 times using Newton interpolation until the sampling interval becomes 1/512 of a period, thus calculating a resampling data. The resampled data is subjected to fast Fourier transform through an FFT processing means thus determining the content rate of harmonics in power system and a reverse effective value.

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